PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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REC'D 20 JUL 2006
WIPO PCT

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Applicant's or agent's file reference 56815-5002WO	Date of mailing (*day/month/year*) 17 JUL 2006 FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date (*day/month/year*)	Priority date (*day/month/year*)
PCT/US05/08957	18 March 2005 (18.03.2005)	31 March 2004 (31.03.2004)

International Patent Classification (IPC) or both national classification and IPC
IPC: G01N 33/574(2006.01)
USPC: 435/7.23

Applicant
TROPHOGEN, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I — Basis of the opinion
- ☐ Box No. II — Priority
- ☐ Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV — Lack of unity of invention
- ☒ Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI — Certain documents cited
- ☒ Box No. VII — Certain defects in the international application
- ☐ Box No. VIII — Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(*b*) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	09 May 2006 (09.05.2006)	Christina Borgeest J. Robert for Telephone No. 571-272-1600

Form PCT/ISA/237 (cover sheet) (April 2005)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/08957

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/08957

Box No. IV Lack of unity of invention

1. ☐ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has. within the applicable time limit:
   - ☐ paid additional fees
   - ☐ paid additional fees under protest and, where applicable, the protest fee
   - ☐ paid additional fees under protest but the applicable protest fee was not paid
   - ☐ not paid additional fees
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
   - ☐ complied with
   - ☒ not complied with for the following reasons:

   See the lack of unity section of the International Search Report(Form PCT/ISA/210)

4. Consequently, this opinion has been established in respect of the following parts of the international application:
   - ☒ all parts.
   - ☐ the parts relating to claims Nos. ____

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/08957

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 17-19, 21-22, 28-75	YES
	Claims 1-16, 20, 23-27	NO
Inventive step (IS)	Claims 17-19,21,22 and 28-50	YES
	Claims 1-16,20,23-27 and 51-75	NO
Industrial applicability (IA)	Claims 1-75	YES
	Claims NONE	NO

2. Citations and explanations:

1. Claims 1-16, 20, 23-27 lack novelty under PCT Article 33(2) as being anticipated by WO 00/17360 (Weintraub et al., published 30 March 2000). Weintraub et al. teach modified glycoprotein hormones that can be used for imaging cells, treatment for various diseases or detection of analytes that interfere with the binding of the modified glycoprotein hormone and its receptor at p. 3, 2nd-3rd paragraphs, pps. 38-45, whole pages, pps. 49-53, whole pages (TSH and TSH-related disorders); pps. 54-61, whole pages (hCG and hCG-related disorders); pps. 61-67 (LH and LH-related disorders); pps. 67-74 under Diagnostic and Therapeutic Uses (FSH and FSH-related Disorders). Note that in US practice, the phrase, "a method of imaging cells", would be treated as a preamble and given little weight for the purpose of prior art if there is no recitation of a method step within the claim.

2. Claims 51-75 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in paragraph 1 above and further in view of WO 97/42322 (Szkudlinkski et al., published 13 November 1997). Szkudliniski et al. disclose the claimed modified glycoprotein hormones as well as assays for determining glycoprotein hormone activity and binding. In addition, Weintraub et al. disclose that the recited hormones could be used for diagnosis.

3. Claims 28-50 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a fusion or chimeric protein consisting of a modified glycoprotein hormone having at least one mutation and the drugs recited in claims 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, or 49.

4. Claims 1-75 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US05/08957

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 18 is objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof: "diaztrizoate" should be spelled "diatrizoate."